Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An X-ray microscopic inspection apparatus having X-ray generating means for generating X-rays by allowing an electron beam from an electron source to impinge on a target for X-ray generation[,] and for inspecting an object to be inspected by utilizing said X-rays, the apparatus comprising:

a magnetic superposition lens having a magnetic field generating portion disposed in the vicinity of an electron generating portion of an electron gun;

a scan coil for freely swinging an electron probe formed via said magnetic superposition lens on a surface of said target for X-ray generation;

reflected electron detecting means having a detecting portion disposed above said target for X-ray generation scanned by the above electron probe, for detecting a reflected electron from said target; and

electron image generating means for performing imaging of a target surface utilizing ~~the~~ signals from said reflected electron detecting means, wherein the apparatus is provided for allowing that ~~arranged so that~~ alignment operations including focus adjustment to said target for X-ray generation and astigmatism correction ~~may~~ be performed ~~based~~ on the basis of image information ~~of~~ from ~~said~~ the electron image.

2. (currently amended) An X-ray microscopic inspection apparatus having X-ray generating means for generating X-rays by allowing an electron beam from an electron source to impinge on a target[,] and for inspecting an object to be inspected by utilizing said X-rays, the apparatus comprising a magnetic superposition lens having a magnetic field generating portion disposed in the vicinity of an electron generating portion of an electron gun; and a scan coil for freely swinging an electron probe formed via said magnetic superposition lens on a surface of said target for X-ray generation.

3. (currently amended) An X-ray microscopic inspection apparatus having-X-ray generating means for generating X-rays by allowing an electron beam from an electron source to impinge on a target for X-ray generation[,] and for inspecting an object to be inspected by utilizing said X-rays, the apparatus comprising a magnetic superposition lens having a magnetic field generating portion disposed in the vicinity of an electron generating portion of an electron gun; and an electron beam axis alignment coil disposed in the vicinity of the electron generating portion of ~~an electron generated from~~ said electron source, for aligning an axis of an electron beam allowed to impinge on said target for X-ray generation via said magnetic superposition lens while accelerating the electron.

4. (currently amended) An X-ray microscopic inspection apparatus having X-ray generating means for generating X-rays by allowing an electron beam from an electron source to impinge on a target[,] and for inspecting an object to be inspected by utilizing said X-rays, the apparatus comprising a magnetic superposition lens having a magnetic field generating portion disposed in the vicinity of an electron generating portion of an electron gun; electron probe control means for scanning an electron beam; and X-ray CT image generating means for allowing a microstructure of a cross section of interest of said object to be displayed by processing plural sets of images based on data of transmitted X-rays of said object in response to said scanning.

5. (currently amended) An X-ray microscopic inspection apparatus having X-ray generating means for generating X-rays by allowing an electron beam from an electron source to impinge on a target for X-ray generation[,] and for inspecting an object to be inspected by utilizing said X-rays, the apparatus comprising a magnetic superposition lens having a magnetic field generating portion disposed in the vicinity of an electron generating portion of an electron gun; fluorescent X-ray detecting means having a detecting portion disposed above said object and outside an X-ray target for detecting a fluorescent X-ray generated from said object; and elemental analysis means for analyzing elements of said object based on [a] fluorescent X-ray signals from said fluorescent X-ray detecting means.

6. (currently amended) An X-ray microscopic inspection apparatus having X-ray generating means for generating X-rays by allowing an electron beam from an electron source to impinge on a target for X-ray generation[,] and for inspecting an object to be inspected by utilizing said X-rays, the apparatus comprising:

a magnetic superposition lens having a magnetic field generating portion disposed in the vicinity of an electron generating portion of an electron gun; and

a scan coil for freely swinging an electron probe formed via said magnetic superposition lens on a surface of said target for X-ray generation;

wherein the target comprises a plurality of target elements formed by a CVD method or a sputtering method, the target elements being provided for generating ~~targets for~~ different characteristic X-rays ~~generation~~ having different wavelengths,

wherein the apparatus is arranged so that characteristic X-rays of a wavelength of interest may be generated by swinging said electron probe to a target element appropriate for ~~switching said targets for~~ generating X-ray s ~~generation~~ having the wavelength of interest, depending on a purpose of inspection.